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CONCISE COMMUNICATION

Septicemia due to *Yersinia pseudotuberculosis*—a case report

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A case report is presented concerning *Yersinia pseudotuberculosis* septicemia presenting as an acute abdominal emergency in an elderly diabetic man with multiple medical problems.

Keywords *Yersinia*, septicemia

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Yersinia pseudotuberculosis is a very rare cause of septicemia in humans. There are 55 previous reports in the literature, reviewed by Ljungberg et al. [1]. Rathmell et al. have also reported a case of bacteremia and splenic abscess in a patient with non-insulin-dependent diabetes (NIDDM) [2].

The organism is a small pleomorphic coccoid Gram-negative non-spore-forming bacillus that typically causes an abscess-forming mesenteric lymphadenitis and diarrhea [3] in humans and animals. It was first identified from lesions in a guinea pig in 1883. We report a case of *Y. pseudotuberculosis* septicemia presenting as an acute abdominal emergency in an elderly diabetic patient with multiple medical problems.

The patient was a man of 79 years, who presented with abdominal pain. Prior to admission, he had exhibited flu-like symptoms for 2 weeks. He was a known non-insulin-dependent diabetic with multiple medical problems. There was no history of nausea, diarrhea or vomiting. Six years previously, he had an emergency repair of a ruptured aortic artery aneurysm.

On admission, his temperature was 36.6 °C, later rising to 38.2 °C. His abdomen was distended. The stool was soft and there was no diarrhea or fecal occult blood. Laboratory findings showed a white blood cell (WBC) count of 14.7×10^9/L, with 12.7×10^9/L neutrophils. CT scans showed an enormous iliac aneurysm. Surgery was performed on the same day. Surgical repair was extremely difficult. There were considerable adhesions due to earlier grafting for the aortic aneurysm repair. From the day following his operation, he was given intravenous co-amoxiclav (1.2 g) three times daily. On the second postoperative day, blood cultures taken on admission yielded a Gram-negative bacillus, and ciprofloxacin 400 mg (later reduced to 200 mg) twice daily was added to the co-amoxiclav. His temperature and WBC count returned to normal within 24 h. Unfortunately, on the tenth postoperative day his temperature was again raised (38.4 °C) and he was septic. Ischemic colitis was diagnosed, and surgery was again performed. At operation, his sigmoid colon was necrotic and perforated and the left colon was totally ischemic. A subtotal colectomy was performed, but he died 2 days later. A repeat blood culture, feces and abdominal fluid cultures, all taken 2 days before death, yielded no significant growth. There was no post-mortem examination, and no operative specimens from the aneurysm repair were submitted for microbiological or histologic examination.

The blood culture isolate was identified as *Y. pseudotuberculosis* by both Vitek GNI (93% confidence value (CV)) and API 20E (99.8% CV) (both bioMerieux, Basingstoke, UK). Our identification was subsequently confirmed, and the organism was shown to belong to *Y. pseudotuberculosis* serotype 1A, by the PHLS Enteric Pathogens Laboratory, Colindale, UK. The organism was found to be sensitive by National Committee for Clinical Laboratory Standards (NCCLS) testing to ampicillin, co-amoxiclav, ciprofloxacin, cefuroxime, cefotaxime, gentamicin, piperacillin–tazobactam, ceftazidime and meropenem.

Y. pseudotuberculosis has a worldwide distribution [3]. It causes epizootic infections in animals, and its reservoirs include, for example, numerous

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animal species, including rodents, rabbits, deer, farm animals, and birds such as turkeys, ducks, geese, pigeons, pheasants and canaries [3]. The main symptoms in these animals are mesenteric adenitis and diarrhea. Animals are usually contaminated by the oral route, and after an incubation period of 1–2 weeks, the organisms are found in the mesenteric lymph nodes. Transmission to humans is assumed to be by ingestion of organisms via contact with an infected animal or a common source of contamination within a family such as food or water [4]. We have no evidence as to the possible source of the organism in this patient.

Recently, Achtman et al. [5] have suggested that *Y. pestis*, the causative organism of plague, is a recently emerged subspecies of *Y. pseudotuberculosis*. The organism has been shown to have comparable virulence to *Y. pestis*, following intravenous injection in mice [6], and, like *Y. pestis*, it is a frequently fatal systemic pathogen. At autopsy, caseous lesions are found in the Peyers patches, mesenteric lymph nodes, spleen and liver [3]. Although no post-mortem examination was performed on this patient, no evidence of liver abscesses or heptosplenomegaly was seen on CT scan or at laparotomy. It has been previously reported that infections in humans usually present as either mesenteric adenitis resembling acute appendicitis, or, in a compromised host, as severe septicemia [3]. In humans, septicemia due to *Y. pseudotuberculosis* is associated with high (75%) mortality despite the use of antibiotics [4]. It is usually seen in immunocompromised patients with underlying disorders, including diabetes, hepatic cirrhosis or iron overload [1]. This patient, a non-insulin-dependent diabetic, confirms previous reports of this association. However, there was no clinical evidence for chronic liver disease or iron overload. The antibiotic of choice for treating yersinia infections has not been identified, but good responses have been reported with gentamicin, ciprofloxacin, streptomycin, the sulfonamides, chloramphenicol and the tetracyclines [4].

The patient in this case was an elderly man with multiple medical problems and longstanding NIDDM who was unable to survive the combination of sepsis and the effects of repeated major surgery.

His iliac aneurysm may not have been the cause of his abdominal pain, but preoperatively the septicemia was not identified. This case is a useful reminder that infection with *Y. pseudotuberculosis* can present with acute abdominal pain without diarrhea.

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